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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/589,774

**Applicant(s)**

ISAKA, KINJI

**Examiner**

TRISTRAM JORDAN

**Art Unit**

4177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/88)  
Paper No(s)/Mail Date 08/17/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

The examiner is acknowledging the applicant's intentions of invoking 35 U.S.C. 112 6th paragraph by using the term **"means for"** in claims 1, 2, 5-6, and 8-10.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 2, 5, and 9** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### **In regard to claims 2, 5, and 9,**

"If one employs means plus function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112." (MPEP 2181, subsection II)

In claim 2, the applicant has invoked 112 6th paragraph for a sensing-temperature setting means which can arbitrarily set or change a temperature to be sensed by the supply-air temperature sensing means. The specification does not describe the structure corresponding to the sensing-temperature setting means nor can

the term "sensing-temperature setting means" be found. Instead, various references are made to a set temperature (see: pg. 7 lines 21 – 24; pg. 8, lines 11-13; pg.12 lines 3-5; pg. 14 2-4) which triggers a close signal to be issued to the damper 20. What is lacking in the specification is a description of the structure or device which can arbitrarily set or change the temperature to be sensed by the supply-air temperature sensing means.

In claim 5, the applicant has invoked 112 6<sup>th</sup> paragraph for a heating means for preheating the supply air drawn into the ventilator. No heating structure has been disclosed in the specification.

In claim 9, the applicant has invoked 112 6<sup>th</sup> paragraph for a static pressure sensing means. The applicant fails to disclose sufficient structure for the static pressure sensing means. On page 11 of the specification, the static pressure sensing means senses a pressure difference between the pressure in supply-air channel and the exhaust air channel in mm of water. No structure for the static pressure sensing means is disclosed.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, 5-6, and 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAYAMA (JP 10-281523) in view of Roy (US 5,257,736) and Grinbergs et al. (US 5,632,334).

TAKAYAMA teaches a heat-exchange ventilator 10 (heat exchange type ventilator) that has an exhaust port 21 (exhaust-air coupling section) and a supply port 20 (supply-air coupling section) both communicating with the outdoors via ducts (for forming supply-air and exhaust-air channels) and coupled to the lateral side of the whole-heat-exchange ventilator. (See Figures 1 & 4)

A core box 11 (box-like ventilating unit) is taught that contains a motor 12 for driving a 1<sup>st</sup> fan 13 (supply air fan) and a 2<sup>nd</sup> fan 14 (exhaust air fan). Total heat exchanger 15 transfers heat from the return air to the supply air. A return air vent 23 (exhaust-air outlet) is located on the underside of the core box for sucking out stale interior air. Supply air inlets 24 introduce air into the different rooms. (See Figure 4)

TAKAYAMA does not teach a cut-off damper for cutting of the supply air based on a signal issued for a supply air temperature sensing means, so that an exhaust air volume exhausted by the exhaust air fan is reduced. However, Roy teaches a self-regulating air ventilation apparatus which has a de-icing mode. In the de-icing mode of the self-regulating air ventilation apparatus the outside air damper 36 (cut-off damper), located in the supply air duct 20, is closed for a predetermined time when the outside temperature is below a preset temperature. (Column 2, lines 32-39) The outside air temperature sensor 40 (supply-air temperature sensing means) emits a signal when the temperature is below the preset temperature in order to close the damper. (Column 5 &

6, lines 55-68 and lines 1-13) Roy's de-icing mode system prevents the freezing of the heat exchanger. Freezing negatively affects the ventilator's performance because the return path of the inside air can become clogged. (Column 1, lines 33-36) Since freezing of TAKAYAMA's heat exchanger can be prevented and the heat exchanger performance can be improved during cold weather by employing the outside air damper and air temperature sensor of Roy, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Roy's damper including the outside air temperature sensing means in TAKAYAMA's supply air channel duct.

TAKAYAMA and Roy both do not explicitly teach that the exhaust- air volume exhausted by the exhaust-air fan is reduced in response to the damper being closed. However, Grinbergs et al. provides motivation for reducing the exhaust air volume of the exhaust air fan when he notes that: if fresh air can no longer enter the ventilated space but can only exit it, due to the closure of the supply air duct by the cut off damper, an undesired negative pressure is created inside the ventilated space.

"In this mode of operation, no fresh air is available to replace the exhausted stale air, leading to the creation of a negative pressure in the building relative to the exterior atmospheric pressure. This negative pressure may cause undesirable infiltration through doors, windows and cracks. An even greater concern is that such a negative pressure can create a backdraft in the flue ducting of gas or oil fired heating equipment which can lead to combustion gases entering the building. Further to this end, the presently proposed 1995 amendments to the Canadian National Building Code, developed by National Research Council of Canada, specifically prohibit whole house depressurization." (Column 2, lines 16-34)

Given that house depressurization is prohibited by national building codes such as the Canadian National Building Code and given the fact that a damper prevents an introduction of external air into the ventilated space to avoid heat-exchanger freezing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the exhaust-air volume of the exhaust-air fan of TAKAYAMA to thereby prevent a large negative pressure from occurring within the ventilated space.

**In regard to claim 2,**

Roy teaches that the temperature at which the temperature sensing means emits a signal is settable. (Column 2, lines 32-39)

Furthermore, the thermostat has been known in air conditioning systems and the like for decades. The thermostat allows a user to set an arbitrary temperature for activating a heating or cooling system. Equivalently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a thermostat for causing the cut-off damper to close based on a signal from the supply-air temperature sensing means since a thermostat is configured to compare a temperature set point with a temperature read from a sensor and trigger a mechanical system.

**In regard to claim 3,**

Roy teaches a de-icing mode timer which can be manually adjusted. (Column 2, lines 39-40) The de-icing mode time comprises a de-icing counter IC7 which receives one pulse per minute from a clock 74 and is adjustable between 1 and 8 minutes by a manually-positioned jumper 78. (Column 5, lines 13-23)

**In regard to claim 5,**

Roy teaches an outside air preheater 42 which can be operated to prevent frosting of the heat exchanger. The preheater can be an electric-resistant wire or a hot water coil. (Col. 3, lines 65-68) It is positioned in the supply air duct coupling section (between the building wall and the ventilating unit enclosure) and heats the air before it reaches heat exchanging core 18. (See Figure One)

**In regard to claim 6,**

Temperature sensing means is, to a certain extent, detachable and mountable by using a fastening means such as screws, clamps, etc. at anyplace in the supply air channel. In any event, such would have been obvious in the art so that one in the art can conveniently secure the sensor at any desired location within the supply air channel.

**In regard to claims 8-10,**

TAKYAMA does not teach an rpm control means, an rpm sensing means, a static pressure sensing means (claim 9), or an air volume sensing means for sensing a volume of the exhaust-air (claim 10). However, as discussed in the rejection for claim 1 above, Gringbergs et al. provides one of ordinary skill in the art a reason to prevent house depressurization. Claims 8 through 10 provide the same essential control system (an rpm control means which controls the exhaust-air fan's rotational speed in response to an environmental variable) to prevent the pressure within the ventilated from decreasing beyond acceptable limits.

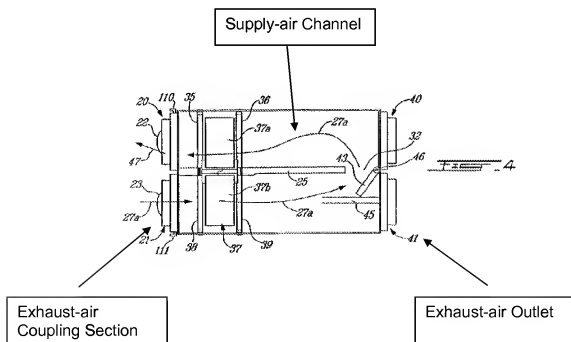
It would have been obvious to one of ordinary skill in the art at the time the invention was made to have chosen among one of the sensor types to complete the



control system since at atmospheric temperature and pressure, the air within the ventilated space can be approximated as an ideal gas. The ideal gas law states that for constant temperature processes the change in pressure of a space is proportional to the change in volume of that very same space. One of ordinary skill in the art would have thus recognized and looked to pressure, the rotational fan speed, and air volume measurement means as equivalent and obvious sensing means for recognizing and in turn preventing ventilated space depressurization.

5. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art references as applied to claim 1 of paragraph 4 above, and further in view of Lagace et al. (US 2002/0139514 A1).

The references of claim 1 of paragraph 4 above teach all the limitations of claim 4 except for an on-off valve that allows a part of the exhaust-air channel to communicate with the supply-air channel.



Lagace et al. teaches an apparatus (Fig. 4 above) for a ventilating system wherein interior air is cycled through both the fresh and stale air paths of the heat exchanger. (See Abstract) The interior air is allowed to cycle through both paths by a defrost air path 27a comprising an opening 32 in a suitably positioned partition wall 25 separating the exhaust air discharge side (exhaust-air channel) from the fresh air intake side (supply-air channel). The defrost air path is opened and closed by a damper mechanism 43 (on/off valve) covering the opening located in the partition wall 25 of the ventilating apparatus. The recirculation of the warm interior air defrosts the rotary heat exchanger wheel 37.

Lagace's ventilating apparatus allows the defrosting of the rotary heat exchanger wheel while diminishing or eliminating a negative pressure within the room or building that is ventilated. (See Abstract) It would, therefore, have been obvious to one of ordinary skill in the art at the time the invention was made to eliminate a negative pressure in the ventilated room while maintaining a high efficiency of the heat exchanger ventilating apparatus of TAKAYAMA since it would not be susceptible to frost by providing the defrost air path means of Lagace et al.

6. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art references as applied to claim 1 of paragraph 4 above, and further in view of Morooka et al. (US 6,577,031).

The references of claim 1 above teach all the limitations of claim 7 except that the supply and exhaust air fan are driven by a DC motor.

Morooka teaches a DC fan motor for a ventilating fan. (Column 1, lines 1-8) Morooka's DC fan motor consumes less power than an AC motor. (Column 1, lines 36-39) Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a DC fan motor such as that taught by Morooka in order to save the extra energy that the AC fan consumes.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tristram I. Jordan whose telephone number is 571-270-781. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Yao can be reached at 571-272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

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/TRISTRAM JORDAN/

Examiner, Art Unit 4177

/Sam Chuan C. Yao/  
Supervisory Patent Examiner, Art Unit 4111